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ABSTRACT

Papers in this volume are the first working papers produced by the Council of Ontario Universities. Issue 1, "The Role and State of Ontario Graduate Education" by Dennis Forcese, advocates the reinforcement of graduate education in Ontario institutions to maintain the overall quality of the institutions and to secure the future. The paper outlines the important, and often overlooked, contributions that graduate students make to the university community in terms of teaching and research assistance, original research, and their potential role as faculty. Issue 2, "Increased Integration of Programs in Engineering and the Humanities" by Patrick Oosthuizen, addresses the need to produce graduates who have a sound understanding of the impact of technology on society and presents some practical models for increasing interaction between humanities and engineering graduates. The third issue, "The Liberal Arts and Sciences Baccalaureate Degree: Are 15 Credits Enough?" by Jocelyn B. Aubrey, questions whether a 3-year program can provide graduate with a reasonable knowledge base in the chosen discipline. The discussion outlines some of the key issues in deciding whether to keep the 3-year degree. Guidelines for the university sector under the Ontarians with Disabilities Act is attached to the working papers collection. (SLD)

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October 2002

Dear Reader,

The papers contained in this volume represent the work of the COU Academic Colleagues who, in 2001-2002, began a Working Paper Series to provide input to Council on academic issues. The Series consists of short papers prepared for the Academic Colleagues' meetings by one or two Colleagues. The author(s) prepare, present and revise their papers according to discussion at the meetings. In this sense, the papers remain the work of the author(s), but also reflect contributions from other Colleagues.

Three papers were completed in 2001-2001:

The Role and State of Ontario Graduate Education advocates for reinforcement of "...graduate education in Ontario institutions in order to maintain the overall quality of the institutions and to secure the future." The paper outlines the important, and often overlooked, contributions that graduate students make to the university community in terms of teaching and research assistance, original research and their potential role as faculty. The paper also notes that graduate students play a role as future leaders in economic development and "smart" industry.

Increased Integration of Programs in Engineering and the Humanities addresses the need to produce graduates who have a sound understanding of the impact of technology on society. "As engineering today more than ever shapes our society and society more than ever shapes the technology produced by engineers, the need for greater balance in the preparation of our science, technology and humanist graduates seems unavoidable if we are to continue to address the future with confidence." The paper presents some practical models for increasing interaction between humanities and engineering graduates.

The Liberal Arts And Sciences Baccalaureate Degree: Are 15 Credits Enough? questions whether a three-year program can sufficiently provide graduates with a reasonable knowledge base of their chosen discipline. The paper presents some of the pros and cons of maintaining the three-year degree and highlights some of the key issues that institutions may want to consider in deciding whether to eliminate the three-year degree. It concludes that "given the popularity of the three-year degree, it is unlikely that many institutions will eliminate the degree entirely, although some may choose to delete the degree from specific disciplines. Ultimately, the challenge is to define more clearly what a university degree is and how the integrity of that degree can be ensured."

We trust that you will find these papers interesting and informative. If you have any comments or questions, please contact Qaid Silk at COU (qsilk@cou.on.ca or 416-979-2165 ext. 258).

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The Role and State of Ontario Graduate Education

*By Dennis Forcese (COU Colleague, Department of Sociology & Anthropology, Carleton University) and Daniel Woolf (COU Colleague, Department of History and Dean of Humanities, McMaster University)**

It seems often lost in discussion and lobbying that graduate education is integral to the fabric of Ontario universities and to the services they provide to our communities. We may find ourselves speaking of undergraduate student growth without regard to the support provided to undergraduate courses by graduate teaching assistants. We may find ourselves speaking of faculty renewal in the system without regard to the simple fact that renewal depends upon graduates from our doctoral programs. We may find ourselves speaking of research intensive institutions and technology transfer without regard to the research support and the original research conducted by graduate students. We may find ourselves speaking of university support of economic development and "smart" industry without regard to the graduate-trained persons leading such development. We may find ourselves speaking of faculty workload, and trying to explain faculty work to government and general public, without explaining the intensive role of faculty in graduate supervision.

Forty years ago Ontario universities experienced unprecedented growth, and unprecedented faculty hiring. A good deal of that hiring was from abroad, as in many disciplines, especially in the humanities and social sciences, graduate schools were few and small. The luxury of recruiting abroad will not be an option in the coming hiring crisis, for source nations themselves will be recruiting aggressively, including recruiting Canadian graduates (an already measurable phenomenon). While since the 1960s the capacity of Ontario universities to offer high quality graduate education has been well-established, and has been monitored regularly through the offices of the OCGS, there is reason to believe that financial support sufficient to attract and to retain the most talented students has severely lagged behind need. A graduate student lost to graduate education in the province has impact on the benefits remarked above, and also increases the probability that the student will eventually take up a career position outside the province; especially if exposed to aggressive and lucrative American (and perhaps Alberta) recruiting.

This is not the only recruitment problem, and the issues (and market forces) are very often discipline- or institution-specific: computer science students, for instance, are better supported than those in fine arts, but science (including medical science) and engineering programs face other problems, such as competition with higher workplace salaries (especially when the economy is booming) and competition with other institutions within the Ontario system. In some cases there is sufficient money in a program to fund every student accepted, but not sufficient to make really competitive offers, with the result that good recruits are often lost, sometimes late in the admissions cycle. Some institutions also lack the faculty resources to mount graduate programs, though ways of enhancing such programs through adjunct appointments and formal inter-institutional arrangements can often ameliorate this problem; the reverse, that the opportunity to supervise graduate students is important in attracting the best faculty members into our ranks is no less true.

The simple thesis expounded in this discussion paper is that the Ontario system must reinforce graduate education in Ontario institutions in order to maintain the overall quality of the institutions and to secure the future. We strongly recommend that COU persuade government of the rather different needs of graduate education. Those

differences are not reflected in largely undergraduate-oriented Ministry communications - despite the important role that many graduate students will play in their secondary capacity as Teaching Assistants (TAs) and chargés de cours, as we attempt to handle the coming increase in undergraduate enrolments.

Tangibly, the reinforcement of Ontario graduate programs would inevitably begin with improved funding for recruitment and retention. It might also include devices such as improved information-sharing leading to student referrals and sponsored-graduate education among Ontario institutions. Sponsored graduate education, for example, taking the form of a stipend provided to a student by an Ontario university other than where s/he is studying (perhaps notably a university not in a major urban centre and more apt to be stressed in its faculty recruitment) could in part address faculty recruitment needs as well as provide an additional means of graduate student support. (This is not a proposal for hiring one's own PhD graduates but it is a suggestion in respect of aiding hiring within the system. A national arrangement among universities in all provinces would be even better, since it would balance the needs of future recruitment with the imperative to create a pool of competitive students, consistent with the Canadian-first hiring policy, which is itself, however, under revision.) The suggestion of a national web-based inventory of about-to-complete PhD students has been made, and is worth pursuing.

The fundamental need, however, is more money in support of graduate studies. It is by and large the case that major graduate schools in the province are located within major urban centers; the very locations where living costs are high. Graduate funding does not appear to have kept up with the living costs associated with housing, for example, in Toronto, or in Ottawa. There seems some measurable impact in the decisions of students to elect a graduate school at home irrespective of program appropriateness rather than in another Ontario location (most evident among M.A. students), or alternatively, to elect for the more substantial support, including tuition remission, characteristically offered in American graduate schools (perhaps most associated with doctoral students). With regard to retention of students and timely completion of their degrees without huge debt loads, past studies have demonstrated a clear positive correlation between both of these and financial support; a recent article in the Chronicle of Higher Education comparing funding across public and private systems echoes this finding south of the border. Labour unrest among TA s at several institutions is often directly reflective of the adequacy of available funding, and it further feeds into the belief among many of our best undergraduates that the life of the graduate student (and, by extension, an eventual faculty career) is unrewarding - a perception we must also work to address within our honours programs.

Additionally it might be remarked that in Ontario graduate student funding is characteristically attached to work as a TA. It may be considered that the level of compensation, especially as it is confounded with graduate study support, is and is perceived to be low, and not unrelated to recent experiences of labour unrest among assistants on Ontario campuses (e.g., York University, McMaster University, Carleton University). But perhaps more significant is the relative absence of unrestricted financial support, that is, financial awards (scholarships, fellowships) for the very best students without a requirement of teaching assistant work. Not requiring students to add to their workload and diverting their attention from graduate research would, it may be suggested, be a development worth considering in order to recruit and retain the very best. That must be balanced with the need for them to develop teaching skills, so some flexibility is desirable (for instance a student having two years of teaching duties and two years either as a research assistant, or simply on full scholarship without attendant non-thesis duties).

A related financial consideration is our apparent failure in support of direct research funding for graduate students, and not unrelated, the scant monies available in support of professional association participation by graduate students. This may be less a problem in the applied and science-oriented fields, where students are typically affiliated with a research group or laboratory, often generously funded. But in the humanities and the social sciences, where more typically small-scale faculty funding is obtained, with scant discretionary funds in support of ancillary graduate student-conducted research and research presentation, we are inhibiting the quality and the completion of original research scholarship. In the latter matter of public presentation, most would view such activity as extremely valuable in the professional socialization and maturation process of graduate studies, as well as a valuable means of information dissemination and exchange; it should, arguably, be mandatory within a graduate program. But to be mandatory, or even merely encouraged, a graduate student financial award would have to include such provision. In the humanities and social sciences, faculty members must be encouraged to include full support (in the form of research assistantships, not merely hourly-waged casual work) for students in the budgets for their own SSHRCC-supported research programs, and discretionary funding to permit the students to pursue research on their own theses, which form part of the faculty member's larger program.

A further retention problem, less tied to money, is the inconsistency of mentoring programs across institutions: we pay much more attention to training our graduate students as researchers than we do in getting them ready to teach, and more effort must also be made to mentor them in basic career development, for instance the preparation of dossiers and learning how to do a job interview.

A last matter that may be posed as problematic is the proper compensation of faculty members actively engaged in graduate education. It may be expected that practice varies from institution to institution, but it appears that an appropriate workload formula in recognition of the considerable burden of graduate supervision (advice, comprehensive examinations, research proposals, multiple theses/dissertation drafts) is not well factored into workload assignment; especially in a period of emphasis upon surging undergraduate numbers. Something like a point system that permits high-volume supervisors to obtain periodic release from an undergraduate class would help, and is practiced at some institutions inside and outside the province, though institutions should take care that the incentive structure does not encourage faculty to take on more students than they can properly handle. The reverse, that members unwilling or unable to participate in graduate education should take on increased undergraduate teaching, is equally true though implementing this may be politically or managerially difficult in some institutions. (And, as remarked in the opening paragraph, graduate education has definitely not been factored into public relations efforts to explain the work of faculty members; we have done little, for instance, to emphasize the critical role of graduate education in wealth generation for the economy.) Many faculty would properly view the close working relationship with a graduate student as intrinsically valuable and rewarding. But it is nonetheless the case that there are growing limits upon the time available to properly advise and scrutinize. Consequences may be less adequate professional education and less adequate research, less timely completion of graduate programs, and even student withdrawals.

This discussion paper, therefore, is premised upon the view that graduate education has been under-valued and under-funded in Ontario. It seeks to provoke suggestions for remedial action.

In closing, we offer a few concrete suggestions for consideration; most are well-known, but bear repeating here.

- ❑ Ensure that the distinctive needs (financial and otherwise) and socio-economic benefits of graduate education are emphasized in public relations and government lobbying.
- ❑ Pursue increased graduate education funding to the Ontario system to improve recruitment and retention.
- ❑ Develop "stand-alone" graduate fellowships not tied to assistantships.
- ❑ Work locally and collectively to make graduate study, and a career as a university researcher and teacher, attractive to promising students.
- ❑ Improve the connections between graduate programs and academic departments seeking faculty through such means as a web-inventory (see above), dossier services, and organized professional mentoring of graduate students in career development and teaching, as well as research.

**The authors acknowledge the helpful comments on an earlier draft of this working paper from other COU Colleagues, at the Oct. 11 2001 meeting, and from Dr David Leyton-Brown of OCGS.*

Increased Integration of Programs in Engineering and the Humanities

*By Patrick Oosthuizen (COU Colleague, Department of Mechanical Engineering Queen's University) Laurie Garred (COU Colleague, Department of Chemical Engineering, Lakehead University)**

No other age has come close to ours in the pace, power and proliferation with which science impacts both the natural and man-made worlds. The explosion of scientific knowledge and the potential for both unintended and intended misappropriation of that knowledge are challenges unique to modern civilization. In particular, the impact of science on society challenges the leadership that universities can provide in advancing the new sciences and in leading society confidently through the uncertain and challenging times ahead. Universities have a critical role to play in the development of the modern mind.

As engineering today more than ever shapes our society and society more than ever shapes the technology produced by engineers, the need for greater balance in the preparation of our science, technology and humanist graduates seems unavoidable if we are to continue to address the future with confidence. It would appear, therefore, that there is much to be gained by increasing the cooperation between engineering and humanities faculties and, in particular, with allowing students in the humanities to incorporate more engineering courses into their degree programs.

THE ROLE OF THE UNIVERSITY

The statement that "engineering today more than ever shapes our society and society more than ever shapes the technology produced by engineers" does not convey the increasing imbalances in the distribution of knowledge power in the knowledge society, nor the potential speed of innovation and global diffusion. As we enter the new age of discovery, the re-shaping of society and technology are issues that are not being adequately addressed by the current university curriculum to a large extent.

There is no doubt that universities are key sources of revolutionary new discoveries and ideas for application: for example, biological cloning (self-replicating) and intelligent (self-structuring) materials have the potential for profoundly beneficial and profoundly disturbing impacts. At the same time, universities have always assumed responsibility for the humanistic foundations and knowledgeable citizenship that guides the societal application of emergent science and technology. The urgency of finding a new balance is driven by the reality that universities have over the past decade invested far more intensively in our capacity for radical invention than in our capacity for technologically-informed citizenship.

REASONS FOR INCREASED INTERACTION OF PROGRAMS IN ENGINEERING AND THE HUMANITIES

Many of the positions that graduates in the humanities take involve working in some way with engineers and with the applications of technology yet these graduates usually have little understanding of how engineers develop technology. Graduates from university programs in the humanities possess training in critical and analytical thinking and in communication. This training can be of great benefit to industrial and business employers. However, such graduates are often hampered in the workplace by a lack of understanding of the relationship between their skills and those of the professional employees in the organizations in which they work.

In order to make it easier for graduates from programs in the humanities to work successfully in multi-

disciplinary teams with graduates from engineering programs, it has been suggested that students in the humanities should, at the very least, be given the opportunity to take courses that give them an understanding of the engineering approach to problem solving and design process, and that demonstrate the inter-linkage between engineering and society.

THE EXISTING SITUATION

A number of universities permit students in the humanities to include a very limited number of courses from engineering and applied science in their programs. The number of courses allowed is usually one or two and the range of courses that these students can take is usually quite limited. Very frequently, the courses that can be taken do not really expose the students to design and the engineering approach nor do they encourage interaction between the humanities and engineering students. While greater cooperation between the faculties could lead to greater integration, there are a number of barriers that must be first overcome.

BARRIERS TO INTERACTION

There is often considerable resistance by both engineering faculties and by humanities faculties to the idea of allowing students from the humanities to take engineering courses for credit. The resistance from the engineering faculties mainly stems from the fear that the class sizes will become too large and that the quality and the focus of the course will be altered. Another concern of engineering faculties is that, in the financial climate presently existing in many universities, they will not receive any additional financial resources for offering courses to non-engineering students.

The resistance from the humanities faculties usually stems from the belief that engineering courses are not really suitable for credit towards a degree in the humanities, from the belief that engineering programs teach practical skills and that the level of the course content in engineering courses is low. Resistance also stems from the fear that allowing students from the humanities to take courses from "professional schools" as part of their degree program will destroy the perceived traditional view of the university structure.

The development of team-taught courses is hampered by the lack of financial resources. There is also sometimes difficulty in developing a close cooperative spirit between the instructors from the two faculties.

POSSIBLE METHODS OF INTERACTION

Students in the humanities can be exposed to engineering through several methods of course delivery, including:

1. Existing courses given by the engineering faculty that show the interrelation of engineering and society;
2. Basic courses in design already offered to engineering students;
3. Special courses on certain aspects of engineering that are taught by engineering faculty;
4. Special courses that are team-taught by faculty from both engineering and the humanities. (These courses can also be made available to engineering students); and
5. Existing project courses in engineering can be modified so that projects are undertaken by interdisciplinary teams involving engineering students and students from the humanities and possibly students from other faculties, such as business.

The advantages and disadvantages of these possible approaches are indicated below:

APPROACH 1

ADVANTAGES: Course already exists, little added resources required, humanities students not handicapped by lack of knowledge of field.

DISADVANTAGES: Most courses of this type do not deal with the nature of engineering and with engineering

design.

APPROACH 2
ADVANTAGES: Course already exists, little added resources required, humanities students interact directly with engineering students.
DISADVANTAGES: Humanities students may not have background in science and mathematics to fully participate in work of class. This can also hinder their interaction with engineering students

APPROACH 3
ADVANTAGES: Courses can be tailored to the needs of the humanities students.
DISADVANTAGES: Extra resources are required and faculty may not be available to develop and teach these courses. Humanities students do not directly interact with engineering students.

APPROACH 4
ADVANTAGES: Courses can take into account the backgrounds of both the humanities and the engineering students. Having faculty from both engineering and humanities teaching the course may ensure that these differing backgrounds are adequately considered.
DISADVANTAGES: Extra resources are required and faculty may not be available to develop and teach these courses. Care has to be taken to ensure that adequate interaction between the humanities and the engineering students occurs.

APPROACH 5
ADVANTAGES: Humanities and engineering students work closely together on projects that illustrate the skills of both groups of students.
DISADVANTAGES: Having to choose projects that meet the needs of both the humanities and engineering students can reduce the quality of the experience for engineering students if care is not taken.

An added disadvantage of approaches 1 and 2 is that if adequate resources are not available, class sizes can become very large. As a result, humanities students can outnumber the engineering students in the classes and can bias the nature of the class in such a way that it is not really suitable for engineering students. In addition, if care is not taken, courses that are taken by engineering and humanities students can actually increase the suspicions and lack of understanding between the two groups. However, these disadvantages can be overcome if the course is taught by an instructor who is skilled in handling large classes and who respects the differing backgrounds and outlooks brought to the class by the two groups.

The ideal solution is probably to adopt all of these approaches. Attention will be particularly directed at approaches 3, 4 and 5.

APPROACH 3: SPECIAL ENGINEERING COURSES
In this approach, special courses taught by engineering faculty but aimed at humanities students are developed. The basic aim of these courses should be to illustrate the nature of the engineering approach, the nature of design and the nature of interdisciplinary work in engineering and to illustrate the interlinking of technological developments and social and political changes. Courses of the following types can, for example, be considered:

- Introduction to engineering design;
- Energy supply and use and its environmental impact; and
- Water supply systems.

The design course is ideal for illustrating the engineering approach, for developing and illustrating problem solving skills and for illustrating the nature of group work. The other courses can be used to illustrate the complex decisions that must be made by engineers, including technical and ethical considerations that are faced by

engineers. For example, a course concerned with energy supply is an ideal basis for a discussion of the interlinking of technological and social considerations in making engineering decisions.

APPROACH 4: CROSS-FACULTY COURSES

Courses that are team-taught by faculty from engineering and from the humanities can be used to illustrate the interlinking of technological developments and social and political changes or to illustrate the interlinking of technological developments and developments in various art forms. These courses should concentrate as much on the effect of engineering on societal changes as they do on the effect of societal considerations on engineering solutions. Examples of possible such courses are as follows:

- The history of space systems;
- Developments in communication and their impacts on society;
- The technological and social history of transportation systems;
- Technological developments and their influence on the performing arts; and
- Engineering and international development.

The courses discussed above are meant only to give an indication of the type of course that appears to be particularly suitable for presentation by cross-faculty teams.

APPROACH 5: PROJECT COURSES

Project courses that involve teams in which there are both engineering and humanities students are in many ways ideal for developing an understanding between the two groups. However, as already mentioned, care must be taken to ensure that the projects provide a challenging and rewarding experience for both groups of students. Suitable projects can, for example, be found in the areas of biomedical engineering, manufacturing systems, energy use, transportation systems and mining.

CONCLUSIONS

Allowing students from the humanities to take engineering and cross-faculty courses for credit seems to offer significant advantages to these students and society. While considerable opposition still exists to the wider-scale implementation of this interaction between the humanities and engineering faculties, it appears that the consequences of little or no interaction are far more severe.

**The authors acknowledge the helpful comments on an earlier draft of this working paper from other COU Colleagues, at the December 13, 2001 meeting, and from Ed Brezina of COU.*

The Liberal Arts and Sciences Baccalaureate Degree: Are 15 credits enough?

*By Jocelyn B. Aubrey (COU Colleague, Department of Psychology, Trent University)**

It is probably true that universities are constantly engaged in various navel-gazing exercises aimed at evaluating, fine-tuning, re-inventing and generally agonizing over the academic programs they offer. Much of what we are doing is directed towards finding ways to satisfy the requirement of our students, their potential employers and our governments, that graduates possess the knowledge base and skills that will ensure future productivity (for students this often means getting a well-paying job). At the same time, we are trying to maintain our goals to educate rather than train, to encourage students to be actively engaged in their own learning and the development of further knowledge, and to foster their ability to think critically about the world in which they live and work. Ultimately we hope to ensure that they are equipped to make meaningful contributions to the development of our society as a whole.

One of the many questions to ask about how universities can satisfy these various conditions is whether a 3-year program of 15 credits[1] is sufficient for an undergraduate degree in the liberal arts and sciences. The short answer is "it depends". The long answer requires a closer look at how each degree is structured and whether the degree formats currently in place at most Ontario universities meet their pedagogical goals. This paper presents some of the pros and cons of maintaining the 3-year degree followed by a brief discussion of the issues that warrant further consideration.

WHY CONSIDER OFFERING ONLY 4-YEAR DEGREES?

The format common to most Ontario universities is that options available in the first year of a BA or BSc do not allow specialization in any particular discipline nor do students generally specify an intent to do either a 3- or 4-year degree at this point. Thus, students typically register to complete five first year credits in several disciplines and are rarely able to take any upper year courses because of prerequisite requirements. In order to build a reasonable knowledge base in any particular discipline and still ensure that a student is exposed to a broad spectrum of courses from other disciplines, sufficient additional credits need to be completed. This is a particular challenge for students wishing to emphasize two different disciplines (double- or joint-major) or to include minor emphases. Even when students are majoring in only one discipline, many programs (typically in the sciences) include requisite courses in related disciplines. While it may be possible to acquire a reasonable knowledge base in one or two disciplines within a 15-credit limit, the argument can be made that the additional year of study allows for the synthesis and critical evaluation of previously acquired knowledge and is essential for meeting the academic goals of the baccalaureate degree.

The change in the Ontario high school curriculum that will have students entering university with four rather than five years of high school has many wondering if students will be less well prepared academically for university. Actually, many faculty members believe that students have been under-prepared for a long time. For example, a 1998 University of Western Ontario report[2] noted that performance assessments of first-year students in two programs (Mathematics and Geography) had declined over several years. The same report supported a move within that university to provide courses that will

improve students' skills in many foundational areas, such as writing and numeracy. Similar proposals for foundation courses, not only in basic skill areas but in more broadly-based perspectives are being considered at many universities. If the move to add foundation courses to the curriculum is adopted, it is hard to envision how a satisfactory program could be completed with fewer than 20 credits.

The signing of the Port Hope Accord by the colleges and universities of Ontario heralded an increase in opportunities for students to move more easily from college to university. Articulation agreements, which follow a 3 plus 2 model whereby the student achieves a 3-year college diploma and a 4-year university degree in five years, are one of the ways that such movement is accomplished. However, many students opt to transfer college credits towards a university degree on a more ad hoc basis. For them, it may be theoretically possible to complete a 3-year degree, but that is rarely practically achieved. This is because transfer credits seldom convert to specific university courses and students usually have to complete more than 15 credits in order to meet specific program requirements. Thus, the more viable choice is the 20-credit degree.

In addition to the pedagogical argument that 20 credits are necessary to ensure that students achieve the requisite depth and breadth of knowledge and competency, there are practical realities to consider. Admission to graduate programs requires a 4-year degree and, while a number of professional second-entry programs do accept students with a 3-year degree, many improve their chances of acceptance by completing a 4-year degree.

WHY KEEP THE 3-YEAR DEGREE?

Many job opportunities and second-entry programs are available to students with a 3-year degree and part-time students, particularly those who are mature, find this a more viable option. Also, the academic abilities of the student often dictates degree choice. On the one hand, it is the favoured option for weaker students who want a university education but are unable to meet the higher academic requirements of the 4-year degree. On the other hand, many of the brightest students who are going on to second-entry degree programs (e.g., medicine, education) are able to achieve those goals with a 3-year degree. Lastly, the financial implications for both students (the cost of an extra year of study) and universities (extra faculty and infrastructure costs) associated with the 20-credit option are far from trivial.

In 1997, in anticipation of changes to the Ontario high school curriculum, COU investigated the impact of a system-wide shift to 4-year degrees. The conclusion drawn at the time was that it was unlikely the government would be willing to provide the necessary financial support and the public, likewise, would not tolerate an increase in tuition for the purpose. The report ended with the following: "...there is currently no impediment for any institution, if it so wishes, to move in this direction on its own should it consider such a move to be in its best interests, the interests of its students and the interests of its institutional mission." Some institutions have already made considered decisions in that regard. In July, 2001 the University of Toronto eliminated the 15-credit degree for its downtown campus; two years ago after some deliberation, Lakehead's senate decided to retain the degree.

WHAT NEXT?

A useful exercise at this juncture would be for universities to consider what differentiates the various degree forms that are currently offered. Can outcomes be defined for specific degrees and specializations? Is it possible to meet discipline-specific standards and competencies for more than one subject within a 15-credit program? What mix of course requirements and outcome expectations defines an honours degree? One interesting question is: should

Ontario universities strive for greater consistency among their degree offerings (akin to the EEC model in Europe that allows considerable transferability of students among institutions)?

While the answers to those questions cannot be provided in this short discussion paper, there are some interesting variations on the more common degree programs currently offered at Ontario universities that represent ways of addressing some of these questions and the pedagogical issues previously raised.

Options for the 3-year degree: 1) Non-major degree: A degree program in which students do not specialize in any particular discipline but instead take a range of courses from the humanities, social sciences and natural sciences. This option is available at Lakehead and, although that university identifies mature individuals as the most likely students, it would probably be attractive to college students whose transfer credits sometimes fall outside the boundaries of a defined discipline. 2) Single-major degree: Restricting the degree to a single major concentration is particularly worthy of consideration because it is questionable whether a satisfactory knowledge base is achieved in programs where students doing a double major take only five or six courses in each discipline. It would be a useful exercise for disciplines to specify the knowledge and skills expected of graduates in their subject area and assess their own degree programs accordingly.

In either of these two scenarios, there is plenty of room within the degree requirements for students to take the kind of foundation courses that provide for the development of depth in a broad perspective – the renaissance man or woman, perhaps?

Options for the 4-year degree: 1) General 4-year degree: This option is one in which students specialize in one or two disciplines but the academic requirements are less stringent than an honours degree (no thesis, lower GPA expectation). Students can focus on particular disciplines and develop a reasonable knowledge base while at the same time there is room in the program for foundation courses and/or courses outside the area(s) of concentration. Such a program allows weaker students the opportunity to experience the value-added aspect of the fourth year experience that many argue is necessary to ensure the academic goals of a university degree are met. UWO offers students the opportunity to do a general 4-year degree in a number of arts and science disciplines. 2) Non-thesis honours degree: This degree maintains the higher GPA expectations of the honours degree within a 20-credit program, but does not require completion of a thesis. A version of this degree is available at Trent.

Given the popularity of the shorter degree at many Ontario universities, it is unlikely that many more institutions will follow U of T's lead and eliminate the 3-year degree entirely, although some may choose to delete the degree from specific disciplines. Ultimately, the challenge is to define more clearly what a university degree is and how the integrity of that degree can be ensured.

**The author acknowledges the helpful comments made on an earlier draft of this working paper by COU Colleagues at the February 14th 2002 meeting.*

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[1] For consistency, the nomenclature of "one full-course (two-term duration) = one credit" will be used throughout.

[2] University of Western Ontario (1998). Report of the Provost's Advisory Committee on Undergraduate Degrees and Programs.

The Ontarians with Disabilities Act, 2001
Guidelines for the University Sector

Prepared by the COU Working Group on the Ontarians with Disabilities Act
October 2002

1. Introduction

People with disabilities represent a significant and growing part of our population. According to Statistics Canada, about 1.9 million Ontarians have disabilities - about 16% of the population. Disability tends to increase with age and as such, it is estimated that 20% of the population will have disabilities within the next two decades. Enhancing the ability of people with disabilities to live independently and contribute to the community will not only have positive effects on the future prosperity of Ontario but will contribute toward the overall quality of life of persons with disabilities and their communities.

The *Ontarians with Disabilities Act, 2001 (ODA)* received Royal Assent on December 14, 2001. The purpose of the *ODA* is to improve opportunities for people with disabilities through identification, removal and prevention of barriers to participation in the life of the province. The full text of the *ODA* is available at:
www.gov.on.ca/citizenship/accessibility/english/act2001.htm

Improving accessibility is a shared responsibility. The *ODA* requires that the provincial and municipal governments and key broader public sector organizations review their policies, programs and services through the development of annual accessibility plans.

As providers of higher education, universities play a crucial role in ensuring that persons with disabilities have access to education and the opportunities that it provides. All Ontario universities are currently demonstrating leadership in working with people with disabilities through the many activities underway on their campuses, including:

- Support services such as those provided through Special Needs Offices/Offices for Students with Disabilities;
- Making course and resource information accessible in alternative formats; and
- Ensuring that buildings are accessible to all persons.

The *ODA* builds on relationships and practices that currently exist by requiring universities to:

- Prepare annual accessibility plans; and
- Consult with students, faculty and staff with disabilities in the preparation of the plans.

The purpose of the plans is to help universities think strategically about barrier removal and prevention. Some may choose to tie their plans into the annual academic, budget and space planning process.

2. University Obligations

The *ODA* mandates the provincial government, the broader public sector (for example, municipal governments, school boards, hospitals, colleges and universities and public transportation providers) to develop annual accessibility plans and make them public.

Accessibility plans are intended to address existing barriers to people with disabilities and to prevent new barriers from being established. The plans can be as short as one page, or longer, depending on the issues identified by the university. All universities are required to prepare annual accessibility plans as part of their regular planning process

Universities will not have to identify or remove all barriers at the same time. They will have the flexibility to identify their own priorities. This is important to note as no new funding has been provided for the implementation of the *ODA*.

ODA Requirements

The *ODA* requires that accessibility plans for scheduled organizations (section 15(2)) address barriers in the organization's by-laws, policies, programs, practices and services in the following ways:

- Report on the measures that the organization has taken to identify, remove and prevent barriers to people with disabilities.
- Describe the measures in place to ensure that the organization assesses its proposals for by-laws, policies, programs, practices and services to determine their effect on accessibility for people with disabilities.
- List the by-laws, policies, programs, practices and services that the organization will review in the coming year to identify barriers to people with disabilities.
- Describe the measures the organization intends to take in the coming year to identify, remove and prevent barriers to people with disabilities.
- All other information that the regulations prescribe for the purpose of the plan.
- Make the accessibility plan available to the public.

3. Steps in Creating an Accessibility Plan

The following outline provides a series of steps a university *may* undertake in developing an accessibility plan. It is recognized that universities differ in their mandates and resources and as such organizational structures differ from university to university. For that reason, the following steps are suggestions and guidelines only.

i. Create an accessibility planning working group.

ii. Describe the measures in place to ensure that the university assesses its proposals for by-laws, policies, programs, practices and services to determine their effect on accessibility for people with disabilities.

iii. List the by-laws, policies, programs, practices and services that the university will review in the coming year to identify barriers to people with disabilities.

iv. Report on the measures that the university has taken to identify, remove and prevent barriers to people with disabilities.

v. Describe the measures the university intends to take in the coming year to identify, remove and prevent barriers to people with disabilities.

vi. Consult with students, faculty and/or staff with disabilities on the content of the plan.

vii. Discuss financial implications of the plan with the university finance department.

viii. Amend the plan based on consultations.

ix. Obtain approval of the Board of Governors and make the plan public.

i) Create an Accessibility Planning Working Group.
As the *ODA* employs comprehensive definitions of both disability and barrier, the university may choose to include wide representation on the working group. Examples of departments that *may* have representation include:

- Administration and Finance
- Physical Plant
- Centre for Students with Disabilities
- Employment Equity/Human Resources
- Library
- Admissions
- Student Affairs
- University Student Organizations
- Academic Affairs
- Faculty and Staff Associations
- Human Rights Office

ii) Describe the measures in place to ensure that the university assesses its proposals for by-laws, policies, programs, practices and services to determine their effect on accessibility for people with disabilities.
The method employed to determine the effectiveness of the plan will vary according to the nature of the barriers being addressed and the mechanisms used to eliminate or prevent them. Universities may want to include a qualitative or quantitative analysis accordingly. Universities may also want to consider unintended impacts of their actions.

Barrier	Action Taken	Action Completed	Impact of Action	Unintended Impact (if any)
Learning Barriers:	Provide support to the faculty and staff in provision of accommodation measures.	Policy written.	Clear guidelines for both faculty and student as to the responsibility and accountability of each party in the accommodation process.	
Accommodation Policies:	Universities may develop and or revise policies as may be required by the Act.	Policy written.	Specific accommodation policies for the classroom and/or assessment may encompass: Attention Deficit/Hyperactivity Disorder; Blindness/Visual Impairment; Chronic Medical Disability; Deafness/Hearing Impediment; Learning Disabilities; Muteness or Speech Impediment; Mobility; Psychiatric Illness; Traumatic Brain Injury	

iii) List the by-laws, policies, programs, practices and services that the university will review in the coming year to identify barriers to people with disabilities.
The comprehensive nature of the ODA allows for the identification of barriers in all areas of the university. In determining an approach to identification, working group members may want to consult with experts in the areas of:

Publications and information resources:
Access to information involves matters relating to format and availability of content, including the means of access and technologies associated with it. While access to publications and information is usually the responsibility of the university's library, there are also related responsibilities in all departments and units that produce publications and web sites, such as promotions, marketing and communications.

Equipment and adaptive technology:
Adaptive technology can assist people with disabilities in numerous ways. Screen readers and text magnification software for visual impairments; voice recognition for visual, learning, and physical disabilities; mind mapping/organizational support software for people with learning disabilities; equipment such as automatic desks for individuals with physical disabilities; and FM systems for individuals who are hard of hearing are a few ways universities can accommodate individuals with disabilities. Adaptive technology is used throughout the university.

Physical Facilities:
In striving to ensure access to physical facilities, the objective is to create a campus and facility environment that is free of barriers. Access and use of institutional facilities typically involves matters relating to removal of exterior and interior barriers, signage and building access and transportation services.

Human Resources Issues:
All Ontario universities are concerned with employment equity as demonstrated by their participation in the Federal Contractors Program, which requires them to make accommodations for the specific needs of employees with disabilities. As such, there are

numerous HR policies that could be reviewed periodically for barriers, including recruitment and support services.

Awareness Issues for Faculty and Staff:
Both faculty and staff must be sensitive to attitudinal and/or pedagogical barriers if they are to identify, remove and prevent them. Universities may want to consider expanding or establishing programs to aid faculty and staff in this regard, for example, universal instructional design.

Academic Services and Policies for Students with Disabilities:
All Ontario universities have policies outlining both the student's and the institution's responsibilities with respect to accommodation for students with disabilities. Polices may make reference to academic accommodation, transcription services, classroom instruction, and exam accommodations.

Non-Academic Student Support Services:
Like all students, students with disabilities have a range of non-academic needs. Some of these needs are met through services provided to all students and some are met through special accommodation. Universities may want to review needs in the areas of social events, residence facilities, food services, counselling services, and career and employment services.

iv) Report on the measures that the organization has taken to identify, remove and prevent barriers to people with disabilities.
According to Section 15(2) of the *ODA*, each plan must state the steps a university has taken to identify, remove, and prevent barriers to people with disabilities. Defining what activity has occurred in the past will help provide a context for the new activity to be recorded in the plan and give universities the opportunity to showcase accessibility achievements.

After the initial plan, yearly planning will consist of a report on the targets met from the previous year's plan.

v) Describe the measures the organization intends to take in the coming year to identify, remove and prevent barriers to people with disabilities.
The core intent of the accessibility plan is to provide an action plan for the elimination of present barriers and the creation of policies and procedures to prevent future barriers from being created. Once identified, universities must determine how to address barriers within their resources and set targets and timelines for these actions. Universities may want to utilize the following table format for identifying and prioritizing barriers:

Barrier: Anything that prevents a person with a disability from fully participating in all aspects of society because of his/her disability.	Implications
Physical Barrier	•Accessibility
Architectural Barrier	•Classroom accessibility •Residence
Information/Communication	•Curriculum materials available in alternate formats (large print, braille, audio, etc.) •Classroom and/or Assessment Accommodation
Attitudinal	•Welcoming environment
Technological	•Accessibility of web based technology
Policy/Practice	•Special Needs Policy

vi) Consult with students, faculty and/or staff with disabilities on the content of the plan.
The method of consultation may vary from university to university. Universities are encouraged to consult with their campus's faculty, student and staff associations when developing accessibility plans.

Groups consulted will vary from university to university. Some universities will have very active student organizations, for example some universities may have a very active student group representing students with hearing disabilities, while other universities will not and thus need to seek consultation from the non-university community. Universities should use their discretion in determining the most appropriate groups and/or individuals to consult.

vii) Discuss financial implications of the plan with the university financial department.
As the financial implications of the requirements of the *ODA* are significant and demands on existing funding exceeds funds available, universities may review the plan and associated initiatives for improvement with their finance departments. This review would be to determine planning for these measures in light of availability of funding in the university capital plan.

viii) Amend the plan based on consultations.
After consultation takes place, the working group may choose to amend the accessibility plan according to the advice and direction received during the consultation process.

ix) Obtain approval of the Board of Governors and make the plan public.
The accessibility plan is complete when the plan receives approval from the Board of Governors. The plan must then be made available to the general public. The method a

university uses to make its plan public may vary. Universities may want to consider either posting or publicizing the availability of the plan on their web sites.

4. Joint Accessibility Plans

Universities *may* submit joint accessibility plans with other organizations affected by the Act.

For information on the Council of Ontario Universities, visit the web site:
www.cou.on.ca

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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